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EXAMINER

FLANDERS, ANDREW C

ART UNIT PAPER NUMBER

2644

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/092,740	Applicant(s) FAY ET AL.	
	Examiner Andrew C. Flanders	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-70 is/are rejected.
- 7) ☒ Claim(s) 1-56, 58 and 65 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 1 - 56 objected to because of the following informalities: In the dependent claims in this group, the claims contain limitations such as “a first audio effect configured to receive”. It appears to the examiner as though this limitation should read as, for example, “a first audio effect block/device/portion configured to receive...”

Claims 58 and 65 objected to because of the following informalities: Claims 58 and 62 contain limitations directed to values. It appears to the examiner as though there may or may not be different values. Limitations defining each value, if multiple values exist, are required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 – 54 and 57 – 70 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1 – 54 and 57 – 70 are directed to a method, system, and a buffer that are implemented within a software program. The software program is not embodied within a computer readable medium

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with instructions nor is there any pre or post processing operation. For further reference please see MPEP 2106.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bargaen (Inside DirectX by Microsoft Press) in view of Abrams (U.S. Patent 6,58,309)

Regarding **Claims 1, 17, 32 and 41**, Bargaen discloses:

An audio buffer (page 204 the system of Fig. 14-1) comprising:

a first audio effect configured to receive audio data from an audio data source, the first audio effect further configured to modify the audio data and generate a stream of audio data (i.e. the secondary buffer applies a special effect, such as positioning the sound in 3D space; page 204 and one effect being attenuating the amplitude; page 249); and

a second audio effect further configured to modify the audio data and generate a stream of modified audio data (i.e. the secondary buffer applies a special effect, such as

positioning the sound in 3D space; page 204 and one effect being delaying the playback; page 250).

Bargen does not explicitly disclose that the second audio effect is configured to receive the stream of audio data from the first audio effect.

Abrams teaches of two modifiers that change some aspect of a blocks data (e.g. pitch), attributes (e.g., pan or instrument), or any combination of data and attributes; col. 6 lines 25 – 30) and that these modifiers are in series; Fig. 10. Adding a series of buffers in order to create a series of effects as taught by Abrams, for instance after the mixers in Fig. 14-1 on page 204 in Bargen in order to allow multiple levels of effects in Bargen would read upon the second audio effect is configured to receive the stream of audio data from the first audio effect.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the buffer system taught by Bargen to place multiple buffers in series to apply multiple effects as taught by Abrams. One would have been motivated to do so to create a system that would allow for layered effects to produce a more realistic 3D sound field and in turn would allow a naïve user to control the field until it sounds exactly as desired; col. 3 lines 45 – 50 in Abrams.

Regarding **Claims 2, 18 and 43**, in addition to the elements stated above regarding claims 1, 17 and 41, the combination of Bargen in view of Abrams further discloses:

wherein the first audio effect is further configured to communicate the stream of audio data to at least a second audio buffer (i.e. the secondary buffers are mixed into the primary buffer; page 204 and Fig. 14-1).

Regarding **Claim 3**, in addition to the elements stated above regarding claim 1, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect is further configured to communicate the stream of audio data to a second audio buffer (i.e. in the combination the software buffers in 14-1 in Bargaen are sent to the mixer and then to another secondary buffer in a series fashion as taught by Abrams in Fig. 10, thus allowing multiple effects be applied to various combinations of initial sound buffers),

and wherein the second audio effect is further configured to communicate the stream of modified audio data to a third buffer (i.e. the secondary buffer placed after the mixer in the combination then passes the data to the primary buffer).

Regarding **Claims 4, 19 and 45**, in addition to the elements stated above regarding claims 1, 17 and 41, the combination of Bargaen in view of Abrams further discloses:

wherein the first and second audio effects are further configured to digitally modify the audio data (all of the buffers contain sound samples in PCM format; page 203 of Bargaen, thus any effect processed on the data is done digitally).

Regarding **Claims 5, 20, 35 and 46**, in addition to the elements stated above regarding claims 1, 17, 32 and 41, the combination of Bargaen in view of Abrams further discloses:

an audio data input mixer configured to combine the audio data received from the audio data source with audio data received from a second audio data source to generate a stream of combined audio data, the audio data input mixer further configured to route the stream of combined audio data to the first audio effect (i.e. the mixers in the combination shown in Fig. 14-1 of Bargaen receive data from the secondary buffers and mix them and output them to the next tier of secondary buffers. Depending on the configuration which would be set by the user to change the sound as desired, the first secondary buffer before the mixer may not have any effects while a second may, say a delay. These pre secondary buffers are then mixed and output to the next secondary buffers. These secondary buffers may be set to apply a delay in the same manner as the first buffer thus routing the stream of the first combined audio data to the first audio effect).

Regarding **Claims 6, 21, 35 and 47**, in addition to the elements stated above regarding claims 1, 17, 32 and 41, the combination of Bargaen in view of Abrams further discloses:

an audio data input mixer configured to combine one or more streams of audio data received from multiple audio buffers to generate a stream of combined audio data, the audio data input mixer further configured to route the stream of combined audio data

to the first audio effect (i.e. the mixers in the combination shown in Fig. 14-1 of Bargaen receive data from the secondary buffers and mix them and output them to the next tier of secondary buffers. Depending on the configuration which would be set by the user to change the sound as desired, the first secondary buffer before the mixer may not have any effects while a second may, say a delay. These pre secondary buffers are then mixed and output to the next secondary buffers. These secondary buffers may be set to apply a delay in the same manner as the first buffer thus routing the stream of the first combined audio data to the first audio effect).

Regarding **Claims 7, 22 and 48**, in addition to the elements stated above regarding claims 1, 17 and 41, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect is instantiated as a programming object having an interface that is callable by a software component (i.e. the effects are set using the programming commands in Table 16-1 on pages 260 and 261 in Bargaen),

the programming object configured to implement software resources to modify the audio data (i.e. if a card doesn't have hardware mixing, DirectSound keeps all the buffers in software; page 226 in Bargaen)

Regarding **Claims 8, 23 and 49**, in addition to the elements stated above regarding claims 1, 17 and 41, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect is instantiated as a programming object having an interface that is callable by a software component (i.e. the effects are set using the programming commands in Table 16-1 on pages 260 and 261 in Bargaen),

the programming object configured to manage hardware resources to modify the audio data (i.e. using a sound card to allow DirectSound to create secondary buffers in the hardware; page 225).

Regarding **Claims 9, 30 and 36**, in addition to the elements stated regarding claims 1, 29 and 32, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect is instantiated as a first programming object having an interface that is callable by a software component, the first programming object configured to implement software resources to modify the audio data (i.e. the effects are set using the programming commands in Table 16-1 on pages 260 and 261 in Bargaen and if a card doesn't have hardware mixing, DirectSound keeps all the buffers in software; page 226 in Bargaen); and

the second audio effect is instantiated as a second programming object having an interface that is callable by the software component, the second programming object configured to manage hardware resources to modify the audio data (i.e. the effects are set using the programming commands in Table 16-1 on pages 260 and 261 in Bargaen and using a sound card to allow DirectSound to create secondary buffers in the hardware; page 225).

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Regarding **Claims 10, 24, 37 and 50**, in addition to the elements stated above regarding claims 1, 17, 32 and 41, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect includes a component identifier that indicates the first audio effect is to be implemented with software resources (i.e. the buffer can be forced to be located in software by setting a flag; page 225 in Bargaen).

Regarding **Claims 11, 25, 38 and 51**, in addition to the elements stated above regarding claims 1, 17, 32 and 41, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect includes a component identifier that indicates the first audio effect is to be implemented with hardware resources (i.e. the buffer can be forced to be located in hardware by setting a flag; page 225 in Bargaen).

Regarding **Claims 12 and 31**, in addition to the elements stated regarding claims 1 and 29, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect includes a component identifier that the first audio effect is to be implemented with software resources (i.e. setting the first secondary buffer to be software by setting a flag; Fig. 14-1 and page 225 in Bargaen),

and wherein the second audio effect includes a component identifier that indicates the second audio effect is to be implemented with hardware resources (i.e.

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setting the second secondary buffer to be hardware by setting a flag; Fig. 14-1 and page 225 in Bargaen).

Regarding **Claims 13, 26, 39 and 52**, in addition to the elements stated above regarding claims 1, 17, 32 and 41, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect includes a component identifier that indicates the first audio effect is to be implemented with hardware resources (i.e. the buffer can be forced to be located in hardware by setting a flag; page 225 in Bargaen),

and if the hardware resources are not available, the first audio effect is to be implemented with software resources (i.e. if the card doesn't have hardware mixing, DirectSound keeps all the buffers in software; page 226 in Bargaen).

Regarding **Claims 14, 27 and 53**, in addition to the elements stated above regarding claims 1, 17 and 41, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect includes a component identifier that indicates the first audio effect is to be implemented with software resources (i.e. the buffer can be forced to be located in software by setting a flag; page 225 in Bargaen),

The combination fails to disclose and if the software resources are not available, the first audio effect is to be implemented with hardware resources. However, the combination does teach if the card doesn't have hardware mixing, DirectSound keeps

all the buffers in software; page 226 in Bargaen. Thus it would have been equally obvious to perform the converse as claimed by applicant.

Regarding **Claims 15, 28 and 54**, in addition to the elements stated above regarding claims 1, 17 and 41, the combination of Bargaen in view of Abrams further discloses:

wherein the first audio effect includes a component identifier that indicates the first audio effect is to be implemented with hardware resources (i.e. the buffer can be forced to be located in hardware by setting a flag; page 225 in Bargaen),

and if the hardware resources that implement the first audio effect become unavailable after the audio effect has been implemented, the first audio effect is to be implemented with software resources (i.e. if the card doesn't have hardware mixing, DirectSound keeps all the buffers in software; page 226 in Bargaen).

Regarding **Claims 16 and 40**, in addition to the elements stated above regarding claims 1 and 32, the combination of Bargaen in view of Abrams further discloses:

the first audio effect includes a component identifier that indicates the first audio effect is to be implemented with hardware resources (i.e. the buffer can be forced to be located in hardware by setting a flag; page 225 in Bargaen), and if the hardware resources are not available:

the first audio effect is not implemented (i.e. if the memory isn't available the call to CreateSoundBuffer will fail; page 225 in Bargaen); and

the second audio effect is further configured to receive the audio data from the audio data source and modify the audio data to generate a stream of modified audio data (i.e. the secondary buffer applies a special effect, such as positioning the sound in 3D space; page 204 and one effect being delaying the playback; page 250 of Bargaen).

Regarding **Claim 29**, in addition to the elements stated above regarding claim 17, the combination of Bargaen in view of Abrams further discloses:

a second audio effect implemented as a component of the audio buffer, the second audio effect configured to modify the audio data to generate the stream of modified audio data (i.e. the secondary buffer applies a special effect, such as positioning the sound in 3D space; page 204 and one effect being delaying the playback; page 250 of Bargaen).

Regarding **Claims 33 and 44**, in addition to the elements stated above regarding claims 32 and 41, the combination of Bargaen in view of Abrams further discloses:

an audio component configured to receive the stream of modified audio data from the audio buffer and produce an audio rendition corresponding the to the stream of modified audio data (i.e. the device and speakers in Fig. 14-1 on page 204 of Bargaen).

Regarding **Claim 42**, in addition to the elements stated above regarding claim 41, the combination of Bargaen in view of Abrams further discloses:

modifying the audio data with at least a second audio effect in the audio buffer (the secondary buffer applies a special effect, such as positioning the sound in 3D space; page 204 and one effect being delaying the playback; page 250 of Bargaen).

Regarding **Claims 55 and 56**, in addition to the elements stated above regarding claims 41 and 42, the combination of Bargaen in view of Abrams further discloses:

One or more computer-readable media comprising computer-executable instructions that, when executed, direct an audio buffer to perform the method of claim 41 (i.e. the DirectSound object is created using software as shown in Table 14-4 on page 209 of Bargaen)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 57 – 70 are rejected under 35 U.S.C. 102(b) as being anticipated by Bargaen (Inside DirectX by Microsoft Press).

Regarding **Claim 57**, Bargaen discloses:

A method for communicating between components of an audio generation system (Fig. 14-1 on page 204), comprising:

requesting the creating of an audio buffer (Table 15 –1 on page 226);

issuing a call to create the audio buffer, the call including parameters that specify an address of an audio buffer description data structure and an address of a variable of an application program that receives an interface of the audio buffer (i.e. calling CreateSoundBuffer to create the buffer; page 229; the buffer is described but a set of flags instructing DirectSound where to put the buffer and what capabilities it should have; page 230)

receiving a pointer to the interface of the audio buffer (i.e. the buffer is described with a pointer to the wave format; page 230).

Regarding **Claims 58 and 65**, Bargaen discloses:

A method for communicating between components of an audio generation system (Fig. 14-1 on page 204), comprising:

requesting the creation of an audio buffer having one or more audio effects (Table 15 –1 on page 226; the buffer can have various effects, page 204);

issuing a call to create the audio buffer with the one or more audio effects (i.e. calling CreateSoundBuffer to create the buffer; page 229 and further deciding where it is located; table 15-1 on page 226), the call including parameters that specify:

an address of an array of audio effect description data structures that describe one or more audio effect configurations;

an address of an array of elements that each receive a value that indicates the value of an attempt to create a corresponding audio effect; and

a value that indicates the number of audio effect description data structures and the number of elements; (i.e. the buffer is described with a set of flags instructing DirectSound where to put the buffer and what capabilities it should have; page 230)

the method further comprising, receiving a value that indicates the status of a corresponding audio effect (i.e. polling the data using ReadWave; pages 241 – 243).

Regarding **Claims 59 and 66**, in addition to the elements stated above regarding claims 58 and 65, Bargaen further discloses:

wherein the value indicates that the corresponding audio effect is instantiated in hardware (i.e. setting a flag to implement the buffer in hardware; page 225).

Regarding **Claims 60 and 67**, in addition to the elements stated above regarding claims 58 and 65, Bargaen further discloses:

wherein the value indicates that the corresponding audio effect is instantiated in hardware (i.e. setting a flag to implement the buffer in hardware; page 225).

Regarding **Claim 61**, in addition to the elements stated above regarding claim 58, Bargaen further discloses:

wherein the value indicates that the corresponding audio effect is instantiated in hardware (i.e. setting a flag to implement the buffer either in hardware or software; page 225).

Regarding **Claims 62 and 68**, in addition to the elements stated above regarding claims 58 and 65, Bargaen further discloses:

wherein the value indicates that the corresponding audio effect was not created because resources were not available (i.e. if a card doesn't have hardware mixing, DirectSound keeps all the buffers in software; page 226 in Bargaen).

Regarding **Claims 63 and 69**, in addition to the elements stated above regarding claims 58 and 65, Bargaen further discloses:

wherein the value indicates that the corresponding audio effect was not created because another related audio effect could not be created (i.e. duplicating the sound buffer will fail if the resources are already committed elsewhere; page 225).

Regarding **Claims 64 and 70**, in addition to the elements stated above regarding claims 58 and 65, Bargaen further discloses:

wherein the value indicates that the corresponding audio effect is not registered for use by the audio generation system (i.e. certain flags can only be set if the other is not, see the CTRL3D and CTRLPAN flags on page 231).

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. O'Connell (U.S. Patent 5,331,111).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Flanders whose telephone number is (571) 272-7516. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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